Claims

1. A catalyst for preparation of unsaturated aldehyde and unsaturated carboxylic acid, which is characterized in that it is in the form of ring-shaped bodies composed of a catalyst composition containing at least molybdenum and bismuth as the active ingredients and inorganic fibers.

2. A catalyst according to Claim 1, in which the inorganic fibers are at least one selected from glass fibers, alumina fibers, silica fibers and carbon fibers, and have an average fiber length of from 50μm to 1.5mm and an average fiber diameter of from 2μm to 20μm.

3. A catalyst according to Claim 1 or 2, which contains from 0.01 to 30% by weight, based on the weight of the catalyst, of inorganic fibers.

4. A catalyst according to any of Claims 1–3, in which the ring-shaped body has an outer diameter of 3–10mm, 0.1–0.7 time the outer diameter of an inner diameter and 0.5–2 times the outer diameter of a length.

5. A catalyst according to any of Claims 1–4, in which the catalyst composition is one expressed by a general formula

$$Mo_a\ Bi_b\ Fe_c\ A_d\ B_e\ O_x$$

(in which Mo is molybdenum; Bi is bismuth; Fe is iron; A is at least one element selected among nickel and cobalt; B is at least an element selected among alkali metal elements, alkaline earth metal

elements, thallium, phosphorus, tellurium, antimony, tin, cerium, lead, niobium, manganese, arsenic, zinc, silicon, aluminium, titanium, zirconium and tungsten; O is oxygen; a, b, c, d, e and x stand for the respective atomic numbers of Mo, Bi, Fe, A, B and O, where a is 12, b is 0.1–10, c is 0.1–20, d is 2–20; e is 0–30 and x is a numerical value determined by the extents of oxidation of the other elements).

6. A process for catalytic vapor-phase oxidation of isobutylene, tertiary butanol or propylene using molecular oxygen to produce respectively corresponding methacrolein and methacrylic acid or acrolein and acrylic acid, the process being characterized by using a catalyst as described in any of Claims 1–5.